

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

:

Tetsuo NAKANISHI et al.

: Group Art Unit.: 4161

Serial No.: 10/527,671

: Examiner: Tigabu KASSA

Filed: March 11, 2005

:

Title: NOVEL ORGANOPOLYSILOXANE POLYMER, PASTY COMPOSITION, AND COSMETIC PREPARATION CONTAINING THE SAME COMPOSITION

APPEAL BRIEF

Mail Stop: Appeal-Brief Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

Further to the Notice of Appeal filed on October 4, 2010, please consider the following.

The Appeal Brief fee of \$ 540.00 is filed/paid herewith.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

(i) REAL PARTY IN INTEREST

The real party in interest is Shin-Etsu Chemical Co., Ltd. See recordation at reel/frame: 017043/0443.

(ii) RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences.

(iii) STATUS OF CLAIMS

Claims 2, 7-34, 37 and 38 are pending in the present application.

Claims 1, 3-6, 35 and 36 were cancelled.

Claims 7-34 are withdrawn from consideration.

No claims were allowed.

Claims 2, 37 and 38 are rejected.

Claims 2, 37 and 38 are on appeal.

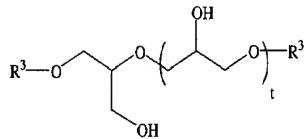
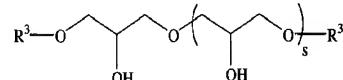
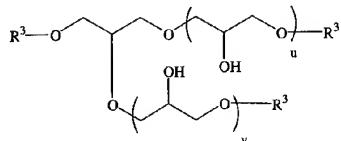
(iv) STATUS OF AMENDMENTS

No amendments were filed after the final Office Action.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention recited in independent claim 2 is directed to an organopolysiloxane polymer having a glycerol derivative which can swell up by containing at least its own weight of a liquid oil (*see page 4, lines 14-17*) selected from the group consisting of hydrocarbon oil, ester oil, natural animal and vegetable oils, semi-synthetic oil, (*see page 17, line 9 to page 18, line 2*) and silicone oil selected from the group consisting of dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane and dimethylsiloxane-methylphenyl siloxane copolymer, cyclosiloxanes, branched siloxanes, higher alkoxy-modified silicones, alkyl-modified silicones and amino-modified silicones, wherein fluorinated silicones are excluded (*see page 19, lines 7-21*),

obtained by the addition polymerization of an organohydrogenpolysiloxane expressed by the following general formula $R^1_dH_cSiO_{(4-d-c)/2}$ (*see page 5, lines 2-5 and line 15*), with a glycerol derivative having alkenyl groups expressed by at least one of the following general formulae (*see page 5, lines 5-11*),



(*see page 12, lines 1-10*),

and wherein, the organopolysiloxane polymer has a three-dimensional cross-linked structure (*see page 17, lines 17-18*).

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground for rejections is the rejection under 35 U.S.C. § 103, i.e., whether claims 2, 37 and 38 are unpatentable over Shioya et al. in view of Sakuta and Harai et al.

(vii) ARGUMENT

The final Office Action mailed on May 3, 2010 (Office Action hereinafter) alleges that “It would have been *prima facie* obvious to the ordinarily skilled artisan to crosslink the organopolysiloxane of Shioya et al. because Sakuta teach the cross-linking of silicone polymers. (Lines 1-3, OA page 7) . . .” and “Sakuta is incorporated in the reference to clearly show that cross-linking organopolysiloxane is a commonly known procedure conventionally performed by an ordinary skill in the art and it has advantageous such as excellent water and oil repellence wherein the polymer swells relative to the oil and thereby achieve a more stable, functional cosmetic composition. (Lines 12-16, OA page 9)”.

These broad allegations however do not have basis in the disclosure of Sakuta or any of the cited references. Sakuta teaches a specific type of silicone polymer, i.e., a crosslinked product of a SiH containing fluorosilicone and an unsaturated polyoxyalkylene, that has the property of swelling up in silicone oil, whereby this polymer is useful in forming paste-like compositions in the field of cosmetics. See abstract. Nothing in this reference teaches that any organopolysiloxane would have such properties when crosslinked. Instead, Sakuta explicitly teaches that “this invention (which is directed to the specific types of silicone polymers disclosed therein) . . . was discovered as a result of intensive studies performed to achieve the . . . object” of the invention therein. See, column 2, lines 19-20. Furthermore, despite the long use of silicone oils in the field of cosmetics as base oils, various efforts in the art to provide a product with such properties are enumerated as falling short in the background section of Sakuta on columns 1 and 2. One of ordinary skill in the art would not understand from the disclosure of Sakuta that any and all organopolysiloxanes should be crosslinked, or that any such crosslinked product would have the advantageous property of swelling up in a silicone oil.

Based on the disclosures of the cited references, one of ordinary skill in the art would not have any reason to expect that a compound obtained by substituting the polyoxyalkylene group of the cross-linked silicone polymer of the Sakuta for the glycerol group contained in the glycerol-modified silicone of Shioya et al. would swell up by containing the above

mentioned liquid oils such as hydrocarbon oil, ester oil, natural vegetable oil and semisynthetic oil. Such could only be figured out once such experiments would have been performed, for which there is no reason provided in the cited art.

Shioya et al. relates to a polyglycerol-modified silicone that is useful as an emulsifier. See, for example, the abstract, and column 1, lines 9-10, teaching that the disclosed siloxane derivatives have surface active action useful as emulsifier. As such, one of ordinary skill in the art would look to Shioya et al. for compounds having the property of emulsifier. Nothing in the cited art teaches or suggests that this emulsifier compound of Shioya et al. should be crosslinked, and that when crosslinked, its properties will chance form emulsifier to a compound that swells up when containing silicone oils to form a paste like material. One of ordinary skill in the art would and could not even expect both this specific compound of Shioya et al. from the vast amount of possible other siloxanes known in the art of needing modification and the resultant properties thereof to change as alleged by the Office Action.

Shioya et al. teaches that an emulsion material more excellent in emulsion stability can be obtained when polyglycerol-modified silicone is used as an emulsifying agent than when polyether-modified silicone is used as an emulsifying agent (Lines 13~18, Column 29, Table 1).

However, the polyglycerol-modified silicone in Shioya et al. is liquid according to the description of Examples. Therefore, the polyglycerol-modified silicone of Shioya is not "the cross-linked silicone which can swell up when it contains oil" of the present invention.

In Sakuta, a polyoxyalkylene-modified cross-linked silicone polymer, a pasty composition containing the said polymer and a cosmetic material are described and it is described that fluoroalkyl group-containing polyether-modified silicone can be used as an non-ionic surfactants ... (Lines 16-19, Lines 54-57, Column 12) and, regarding the said fluoroalkyl group-containing polyether-modified silicone", if p exceeds 2.0, ..., so sufficient emulsification is no longer obtained" is described (Lines 2-5, Column 13).

Considering the above aspects, one of ordinary skill in the art could predict easily that, in Sakuta's invention, an emulsion material excellent in emulsion stability can be obtained by using the glycerol-modified silicone of Shioya et al. instead of the fluoroalkyl group-containing polyether-modified silicone, that is, by mixing the glycerol-modified silicone of Shioya with the cross-linked organopolysiloxane polymer of Sakuta. However, one of ordinary skill in the art would not find a reason to introduce a glycerol group instead of a

polyoxy alkylene group into the cross-linked silicone in Sakuta.

The Advisory Action mailed on September 16, 2010, (Advisory Action hereinafter), at about the middle of page 2, and so does the Office Action on page 6, allege that the polymers taught by Sakuta and Shioya et al. are similar polymers which both contain the instantly selected species a2. However, as well known in this art, a polymer is not merely a simple combination of elements, but can form the reaction of various monomers, oligomers, etc., with other monomers, etc., in a variety of possible ways, and in the present case crosslinking in various ways. Just because a certain starting material unit in a polymer may be the same as a starting material unit in another polymer among other reactants does not mean at all to one of ordinary skill in the art that they would be similar or that their properties would be similar.

The Office Action also admits that Shioya et al. is further deficient in that the glycerol derivative of the present claims is not taught therein (see Office Action page 5, about the middle of the page).

One of ordinary skill in the art has to look to Harai et al., which teaches a completely different type of product from the cosmetics products of Shioya et al. and Sakuta, i.e., a silicone rubber adhesive (see title of Harai et al.), to first substitute the glycerol components of Shioya et al. with a therein disclosed example of a non-essential component (F) of the composition disclosed in Harai et al., which is a partial allyl ether of a multivalent alcohol component (see page 4, line 15), the relevant example of which is diglycerol diallyl ether (among many options disclosed on page 4, lines 20-24). This component (F) is disclosed to impact tack to the adhesive of the invention disclosed in Harai et al. only and is disclosed to function though its joint use with components (D) and (E) of Harai et al. to improve the durability of adhesion. Nothing in Harai et al. teaches that this component should be used in other polymers and that even if it would be so used that it would still have the function of providing tack like for the invention of Harai et al.

A starting component of a reaction taught by one reference disclosed to impart a specific property of the final product of said reaction is not expected to be substitutable into a new reaction as a starting component and to provide the same property to a completely different product. As well known, a compound and its properties are inseparable. See, for example, *In re Lalu*, 223 USPQ 1257 (CAFC 1984), *In re Gyurik*, 596 F.2d 1012, 201 USPQ 552 (CCPA 1979), *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963), and *In re Stemniski*, 444 F.2d 581, 170 USPQ 343 (CCPA 1971).

Nevertheless, the Office Action alleges that the reason for the alleged combination is that one of ordinary skill in the art would expect "good cosmetic adhesiveness." See Office Action page 7, about the middle of the page. However, there is no support for such an allegation. Harai et al teaches a silicone rubber adhesive agent and, therefore, it is completely different from the organopolysiloxane polymer of the present application used for cosmetic material in the way of using. As such, one of ordinary skill in the art would not consider "tack" (adhesiveness) required in cosmetic materials which is applied on the human face, for example, and "tack" (adhesiveness) required in a silicone rubber adhesive agent which bonds various physical objects to each other as having the same requisite qualities.

In addition, it is unreasonable in this art to allege that components added for bonding physical objects to each other are useful for cosmetic material applied to human faces.

Furthermore, since adhesive agents are used to bond physical objects together in the reference, one of ordinary skill in the art would rather stay away as swelling-up of cured material by containing oil is a physical property not desired in an adhesive agent. Thus, the combination of these references in any direction is improper.

Another reason for the alleged combination is that the diglycerol diallyl ether of Harai et al. has two available bonds for polymerization, since one of the double bonds can cross-link to the organohydrogen siloxane polymer and the other one would be available for further cross-linking and polymerization. See Office Action page 7, about the middle of the page. While the above ability of diglycerol diallyl ether to react as alleged is valid, there is no reason why one of ordinary skill in the art would have found a reason to take this specific starting component of the disclosure of Harai et al., substitute it for a glycerol component of Shioya et al., and thereafter crosslink the product as in Sakuta. There are numerous other starting materials in the art that could react at two sites, including many compounds disclosed by Harai et al. See, e.g., page 4 of Harai et al. Such a broad allegation is not an adequate reason for one of ordinary skill in the art to proceed in the alleged manner.

The silicone rubber adhesive composition of Harai et al. comprises (A) alkenyl group-containing organopolysiloxane, (B) organohydrogenpolysiloxane, (C) wet-method hydrophobicized reinforcing silica, (D) acryl-functional silane coupling agent or methacryl-functional silane coupling agent, (E) epoxy-functional silane coupling agent, (F) partial allyl ether of multivalent alcohol as an essential component, and (G) a platinum-type compound catalyst component to cure the adhesive. All but component (F) are essential component of

the invention disclosed in Harai et al. See, e.g., page 2, lines 45-47, page 3, lines 26-27 and 49-50, page 4, line 6 and 31-32. As such, one of ordinary skill in the art would not have a reason to take this one non-essential component out of the entire teaching of Harai et al. and use it in the compounds taught by Shioya et al., which thereafter would have to be crosslinked as taught by Sakuta.

In the present claims, none of the above components (A), (C), (D), (E) and (G) are used for synthesizing the claimed organopolysiloxane polymer. In Harai et al.'s invention, even though diglycerol diallyl ether is used as the component (F), the reaction product of these components is a structurally complicated cross-linked type compound which has completely different properties from that of the presently claimed product, which is evident from even the description of the product as a silicone rubber adhesive. Therefore, it is clear that a cross-linked compound obtained by reacting all of these components is a different substance from the organopolysiloxane polymer of the present invention, even if diglyceroldiallylether is used as the component (F). As well known in the polymer arts, just because a starting material (reactant) of a polymer may be the same as a starting material of another polymer, the resultant polymers would not be expected to be similar and their properties would not be expected to be similar either. Yet, without any support, the Office Action on page 7 also alleges that the products of Harai et al. and Shioya et al. "comprise a similar organohydrogen siloxane polymer and glycerol derivative components" thereby providing a reasonable expectation of success. This allegation is factually erroneous. The emulsifier of Shioya et al. would not be considered to be a similar product to the silicone rubber adhesive of Harai et al. by one of ordinary skill in the art. They are structurally different and have different properties.

There also appears to be some confusion regarding claim interpretation by the Office Action. The Office Action alleges that by the use of the term "containing" in line 2 of claim 2 applicants do not exclude additional unrecited elements. See Office Action lines 10~14, page 11. However, in the present Claim 2, "containing..." mentions only properties of organopolysiloxane polymer in that it swells up when contacting at least its own weight in various liquid oils. In fact, the organopolysiloxane polymer of the present Claim 2 does not contain an oil. Therefore, "containing" in the present Claim 2 is not used as a "transitional term." The Advisory Action appears to have admitted that the claim was not correctly interpreted, but then postulates at the bottom of page 3 that the term "having" is now

interpreted as open terminology. However, it is unclear which occurrence of “having” is the subject of the allegation or how and why such conclusion is drawn.

Furthermore, the application provides data in further support of the patentability of the claimed invention.

Examples 11-12 and Comparative Examples 1-2 in the present specification, demonstrate that the cosmetic material using the glycerol-modified cross-linked organopolysiloxane in the present application provides significant advantageous properties compared to the one using polyoxyalkylene-modified cross-linked organopolysiloxane (see page 49 of the specification). See also the general teaching in this regard in the application teaching that the glycerol-modified cross-linked silicone polymer of the present invention has more excellent dissolving and emulsifying properties in various oils than the polyoxyalkylene-modified cross-linked silicone polymer of the Sakuta Reference (lines 20-22, page 3, of the specification).

The Advisory Action at the bottom of page 2 alleges that Example 11 “does not actually incorporate the crosslinked polyglycerol-modified silicone as they allege but it contains neither crosslinked polyglycerol-modified silicone and crosslinked polyether-modified silicone nor uncrosslinked polyglycerol-modified silicone and uncrosslinked polyether-modified silicone.” It is clear that the Examiner does not appear to understand the Examples.

In Example 11, not uncross-linked polyglycerol-modified silicone, but cross-linked polyglycerol-modified silicone only is used as a polyglycerol-modified silicone, which exhibits very good moistness after use and long term moistness (see page 49 of the specification.) In this regard see Table 1 on page 48 of the specification identifying the ingredients of these examples, where Example 11 recite containing 7 wt% of the pasty composition of Example 1. The pasty composition of Example 1 is the crosslinked polyglycerol-modified silicone present in Example 11. See page 38-39 for Example 1, especially page 39, lines 18-19, disclosing said composition as a pasty composition containing 30% of crosslinked material. See also the comments regarding these examples at the bottom of page 49 clearly and explicitly stating that Examples 11 and 12 contain “the crosslinked polyglycerol-modified organopolysiloxane polymer of this invention.” It is unclear after such teachings in the disclosure, why the Examiner still maintains that Example 11 does not contain said polymer.

In sum, the Office Action appears to have ignored the effects taught by Example 11 of the present application wherein uncross-linked polyglycerol-modified silicone is not used, which is unreasonable.

The Advisory Action at the top of page 3 further alleges that the data regarding Examples 11 and 12 “is not due to the incorporation of cross-linked polyglycerol derivative. On the contrary applicant really also proved that a composition containing polyglycerol-modified silicone just exactly the same as Shioya et al. also exhibited very good moistness after use and long term moistness in general (Example 12).”

There is absolutely no basis for the above allegations in the data or elsewhere. Example 12 contains 5 wt% of the pasty composition of Example 1 (see Table 1 on page 48). The composition of Example 12 additionally contains a small amount, i.e., 0.5 wt.%, of polyglycerol modified silicone. As disclosed in Shioya et al., such is an emulsifier. The presence of a small amount of emulsifier in the composition of Example 12, which also contains the claimed cross-linked polyglycerol-modified silicones, in no way leads one of ordinary skill in the art to conclude that the beneficial results are not due to the incorporation of cross-linked polyglycerol derivative. Nor does this lead one of ordinary skill in the art to a conclusion that the results are due as a result of the presence of the emulsifier of Shioya et al. These leaps in logic demonstrate that the Examiner does not understand the data.

Instead, when reviewing the data, one of ordinary skill in the art would readily identify that Example 11 is side-by-side with Comparative Example 1, comparing the cross-linked product of the present application with that of Shioya (Comparative Example 1 contains crosslinked polyether-modified silicone) and that Example 12 is side-by-side with Comparative Example 2, with both of these in addition to the respective crosslinked products contain 0.5wt% of the emulsifiers polyglycerol modified silicone and polyether modified silicone, respectively. The data tabulated on page 49 clearly establishes that Example 11 containing the crosslinked polyglycerol-modified organopolysiloxane polymer of the claimed invention excelled in moistness after use, and this moistness was maintained over time, i.e., has good moistness retention, when compared to Comparative Example 1, which Example 11 and Comparative Example 1 only had as a difference, the inclusion of the polymer of the cited art versus the polymer of the claims. Likewise, Example 12 containing the crosslinked polyglycerol-modified organopolysiloxane polymer of the claimed invention (and additionally a bit of emulsifier as discussed above) excelled in moistness after use, and this moistness was

maintained over time when compared to Comparative Example 2 (which also contained a bit of emulsifier as discussed above).

There is nothing in the prior art that would lead one of ordinary skill in the art to expect that the claimed composition herein would even form as a pasty composition useful in cosmetics, and that even if formed that it would have improved properties over that of the closest prior art composition.

The Advisory Action at the top of page 3 also alleges that the assessment is subjective and lacks a reasonable level of scientific objectivity. There is no basis for such an allegation, and no support based in fact is provided as to why there would not be a reasonable level of scientific objectivity. As disclosed at the bottom of page 48 of the application, the evaluation was carried out by a panel of 50 women. In the field of cosmetics it is not unusual for end users to evaluate a product and grade them on various properties. As such, the data would be considered objective in this art by those of ordinary skill. The Office Action's allegations in this regard are improper and lack factual support.

As described by applicants, the moisture retention property of the claimed compound “is thought to be due to the fact that it has a water-holding capacity due to the glycerol group, and shows that the cross-linked polyglycerol-modified organopolysiloxane polymer of this invention or a mixture thereof with polyglycerol-modified silicone can provide a cosmetic material with high moisture retention which has excellent resistance to drying.” See specification, lines 1-7, page 50. As such, the reasonableness of the effect of the present invention is even explained technically, although such is not necessary and nor is binding. Therefore, for this additional reason as well, it is not reasonable by the Office Action to allege that a reasonable level of scientific objectivity is lacking.

Moreover, the glycerol-modified cross-linked silicone polymer of the present claims can contain liquid oils such as hydrocarbon oil, ester oil, natural vegetable oil and semisynthetic oil, which are advantages not disclosed to be achievable by the polymers of the prior art.

Reversal of the rejection is respectfully and courteously requested.

Respectfully submitted,

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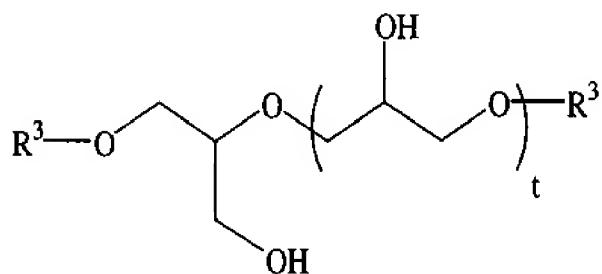
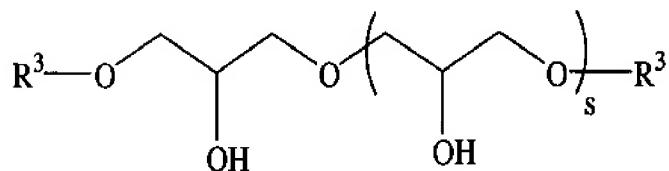
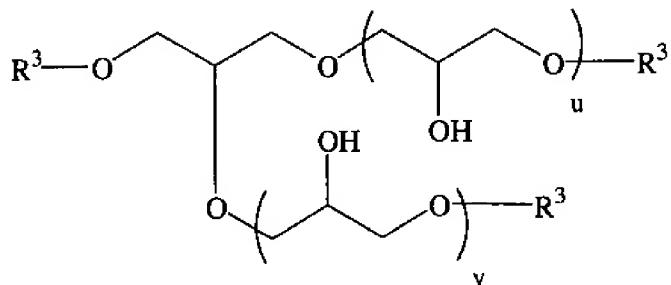
Date: December 3, 2010

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(viii) CLAIMS APPENDIX

2. An organopolysiloxane polymer having a glycerol derivative which can swell up by containing at least its own weight of a liquid oil selected from the group consisting of hydrocarbon oil, ester oil, natural animal and vegetable oils, semi-synthetic oil, and silicone oil selected from the group consisting of dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane and dimethylsiloxane-methylphenyl siloxane copolymer, cyclosiloxanes, branched siloxanes, higher alkoxy-modified silicones, alkyl-modified silicones and amino-modified silicones, wherein fluorinated silicones are excluded,

obtained by the addition polymerization of an organohydrogenpolysiloxane expressed by the following general formula $R^1_d H_e SiO_{(4-d-e)/2}$, with a glycerol derivative having alkenyl groups expressed by at least one of the following general formulae,



wherein,

R¹ may be identical or different and is a substituted or unsubstituted monovalent hydrocarbon group having 1-30 carbon atoms which does not contain an alkenyl group,

R³ is an alkenyl group having 2-20 carbon atoms,

d and e are respectively defined by:

$1.0 \leq d \leq 2.3$, $0.001 \leq e \leq 1.0$, $1.5 \leq d+e \leq 2.6$, and

s, t, u and v are respectively integers in the range 1-20;

and wherein, the organopolysiloxane polymer has a three-dimensional cross-linked structure.

37. An organopolysiloxane polymer according to claim 2, wherein the liquid oil is selected from the group consisting of hydrocarbon oil, ester oil, natural animal and vegetable oils, and semi-synthetic oil.

38. An organopolysiloxane polymer according to claim 2, wherein the liquid oil is a silicone oil selected from the group consisting of dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane and dimethylsiloxane-methylphenyl siloxane copolymer, cyclosiloxanes, branched siloxanes, higher alkoxy-modified silicones, alkyl-modified silicones and amino-modified silicones.

(ix) EVIDENCE APPENDIX

None

(x) RELATED PROCEEDINGS APPENDIX

None